COMMONWEALTH of VIRGINIA

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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

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October 30, 2006

The Honorable Kirkland Cox, Chairman
House Committee on Agriculture, Chesapeake, and Natural Resources
1309 Appomattox Drive
Colonial Heights, VA 23834

The Honorable Vincent F. Callahan, Jr., Chairman
House Appropriations
P.O. Box 1173
McLean, VA 22101

The Honorable Charles R. Hawkins, Chairman,
Senate Committee on Agriculture, Conservation, and Natural Resources
P.O. Box 818
Chatham, VA 24531-0818

The Honorable John H. Chichester, Chairman
Senate Finance
P.O. Box 904
Fredericksburg, VA 22404-0904

Re: Supplemental Information to 2006 Senate Document 3
Review of DEQ's permit programs

Dear Gentlemen:

In November 2005, the Department of Environmental Quality (DEQ) provided you with results from a study conducted on the efficiency of DEQ's permit programs as required by passage of SB365 and HB1350 during the 2004 session of the General Assembly. This information has been posted on the General Assembly's website as 2006 Senate Document 3. DEQ continues to work with stakeholders to improve the agency's permit programs.

Enclosed you will find supplemental information to the 2006 Senate Document 3. Information relating to the solid waste permit program has been compiled and presented to you at the request of Solid Waste Program Peer Review Team members who represent regulated solid waste management facilities. This supplemental information includes additional program specific information to be provided to you in addition to the information included in 2006 Senate Document 3.

Additionally, over the course of the past year, ERM, the consulting firm selected to assist the agency with conducting a review of the permit programs, completed the development of a methodology to evaluate the adequacy and allocation of DEQ's staff in the permit programs. The results of their review are also enclosed. ERM identified steps the agency could consider implementing to minimize the impact employee turnover has on the efficiency of the agency's operations. ERM also suggested the agency continue to review staffing allocations to programs periodically to ensure that resources are deployed to meet the agency's strategic priorities.

This supplemental information will be posted on the agency's website at www.deq.virginia.gov in conjunction with the report that was issued in November 2005. If you have any questions concerning this supplemental information, please contact me at 804-698-4020.

Sincerely,

David K. Paylor

David K. Paylor

Enclosure

Supplemental Information to
2006 Senate Document 3

Solid Waste Program Peer Review Team Report

and

Virginia DEQ Permitting Process Efficiency Study
Agency Staffing Methodology Report

September 2006

Solid Waste Program Peer Review Team Report

Supplemental Information to
2006 Senate Document 3

Virginia Department of Environmental Quality

September 2006

Solid Waste Program Peer Review Team Report

Introduction

During the 2004 General Assembly, through passage of SB365 and HB1350, the permit fees assessed from regulated facilities were increased to replace general funds that were removed from the agency's budget. Included in these bills was a requirement for the Department of Environmental Quality (DEQ) to evaluate and implement measures to improve the long term effectiveness and efficiency of the solid waste permitting programs to ensure that maximum value is being achieved from the funding provided for the solid waste program. ERM, a consulting firm with experience in conducting similar reviews, assisted the peer review team with conducting this review. A separate report has been submitted that encompasses the Virginia Pollution Discharge Elimination System, Virginia Water Protection, Air, Hazardous Waste and Solid Waste programs. This report provides more detail on elements of the solid waste program.

Solid Waste Peer Review Team

A solid waste peer review team was formed to assist the agency with reviewing the solid waste program. The group was comprised of members familiar with the operation of solid waste facilities, and team members were recommended by the Virginia Waste Industries Association, The Solid Waste Association of North America, and the Southwest Virginia Solid Waste Management Association. DEQ program staff were also included on the team. Solid Waste Peer Review team members are listed in Attachment 1. The team focused on areas of the solid waste program that potentially could be improved the most, either by reducing costs or increasing efficiency for the regulated community or DEQ.

The solid waste program regulates over 470 active and closed facilities that treat, store, or dispose of solid waste. This includes solid waste landfills, transfer stations, incinerators, and other facilities that manage solid waste.

Solid Waste Permit Program Funding Information

No federal funds are available to support the solid waste program, and the program is currently funded through general fund appropriations and fees paid by regulated facilities. Prior to July 1, 2004, fees were collected for permit applications and all permit amendments. A new fee structure became effective July 1, 2004, that required fees for permit applications and major permit amendments, and annual fees. No fees are assessed for the processing of minor permit amendments. Annual fees are based on the operational status of the facility, and some annual fees are based on the amount of waste managed. In fiscal year 2005, the new fee structure provided funding for 53.6% of the direct solid waste program costs. The remainder of those costs, both direct and indirect, was paid for with general funds. Program funding information for fiscal year 2005 is presented in the table below. The FY 2005 Permit Program Evaluation Report is required to be submitted every even year and was submitted to the Virginia General Assembly by

January 1, 2006. The following information is based on the fiscal year 2005. The FY2005 Permit Program Evaluation Report is available at : http://www.deq.virginia.gov/regulations/documents/PERMIT.FEE.FY05.final.report.12.29.05.pdf

Solid Waste Program Costs

Direct Costs	$3,181,360
Indirect Costs	$998,909
Total costs	$4,180,269

Revenues

Permit Fee Collections	$1,705,560
Federal Funds	$0
Total non-general funding	$1,705,560

Program Funding Sources

Permit Fee Collections	$1,705,560
Federal Funds	$0
General Funds	$2,474,709
Total Funding	$4,180,269

Program Staffing

In July 2005 the agency had a total of 78 positions that work in the solid waste program. Some of these staff are dedicated to the solid waste program, while others work on solid waste projects and other projects outside of the solid waste program. The amount of time these 78 staff spend working on solid waste projects is equivalent to approximately 56 full time employees being dedicated to the solid waste program. In the past the agency has benefited from staff being trained in multiple programs. This allows the agency increased flexibility to handle changes in workload, allowing staff to be utilized to complete projects when turnover and vacancies occur. This flexibility allows the allocation of resources to be utilized more efficiently and minimizes disruptions caused by vacancies.

Solid Waste Program Staffing

# of people working in solid waste program	78
Approximate # of equivalent full time employees	56
Approximate # of positions funded by General funds	42
Approximate # of positions funded by fees	14
Approximate # of positions funded by tire program fees	1

Application and annual fees collected in the solid waste program are used to support activities conducted by staff in the waste division. The following table illustrates the position types and the number of staff that are filling those roles as of December 2005.

Position type	# of positions
Permit writers	8
Geologists	8
Regulation writers	3
Permit coordinator	1
Compliance coordinator	1
Inspector	24
Financial assurance	3

Attachment 2 is a list of all positions that work in the solid waste program as well an estimate of the percentage of time they work in the solid waste program. The actual percentages of time spent on solid waste issues by staff periodically vary, due to vacancies, special projects, and workload.

Workload analysis

The solid waste compliance program developed a workload analysis that assists the program with allocating available positions. The workload analysis considers the number, location, and types of regulated facilities, current agency priorities, and staffing levels of the program. Using this information, the agency is able to focus available resources to operate the solid waste compliance program. This workload analysis allows the agency to evaluate on an annual basis the number of facilities regulated, and the distribution of the staffing across the program to inspect the facilities. This tool is used to assist the agency with adjusting staffing levels to reflect changes in the distribution of facilities in the program. This is also a tool the agency uses to estimate the time and focus of inspections and initiatives. A copy of the workload analysis for fiscal year 2005 is included as Attachment 3.

Opportunities for improving the Solid Waste Program

Through conducting the review of the solid waste program, the Solid Waste Peer Review Team identified five key areas for improvement. The most difficult part of this review was the quantification of benefits of implementing opportunities. Due to the uniqueness of projects, quantification of the benefits to DEQ or the regulated community is difficult to identify. DEQ will continue to work with the Solid Waste Peer Review Team to assess the benefits that are realized from implementing the opportunities for improvement. The opportunities for improving the solid waste program are as follows:

1. **Streamline the permit application process**

2. **Expedite the permit review and issuance processes**
3. **Strengthen risk-based, performance-based permit approaches**
4. **Improve quality, consistency, and relevance of permits**
5. **Improve quality of inspections and timeliness of reports**

Attachment 4 contains more details on the specific benefits of implementing these opportunities, as well as tasks that need to be completed in order for the agency to implement them. Noted beside each task is the current status of the task, either that the task has been completed (indicated by the letter C), or plans are underway to implement the task (indicated by the letter U). In total 30 tasks were identified that needed to be completed to implement the opportunities identified by the Solid Waste Peer Review team. To date, 5 tasks have been completed and DEQ has assigned project teams and developed plans to complete the remaining tasks.

The opportunities identified by the Solid Waste Peer Review Team will take time to implement. Separate and apart from review and implementation of the recommendations, DEQ decided to include some items in DEQ's strategic plan- 2010. Action plans have been developed and the schedule for completing the tasks are well in advance of 2010. The Solid Waste program's progress towards implementing the opportunities identified can be tracked through the agency's website at http://www.deq.virginia.gov/info/permitreview.html . This website also provides information on staff working on the opportunities and the schedule that has been established for implementing tasks related to the opportunities. Over the course of the next year, the agency will be focusing efforts on streamlining the solid waste permit application and permit format, improving permit coordination, both internally and externally, and revising the permit workload analysis.

The information obtained from the Solid Waste Peer Review Team and agency staff has been valuable during this review process. DEQ is grateful for the time and effort expended by all on this project, and as a result of this study, DEQ, the regulated community, and the environment will receive many benefits. DEQ will continue to work with stakeholders on the implementation of the opportunities identified. Stakeholders are a valuable asset and DEQ hopes the stakeholders will be able to provide feedback to the agency in the future on benefits they have realized as a result of implementing these opportunities.

Attachment 1- Solid Waste Peer Review Team Members

Member	Organization	Representing
Bill Dennison	City of Bristol	SVSWMA
Aziz Farahmand	DEQ	West Central Regional Office
Joe Levine	New River Resource Authority	NRRA
Amarjit Riat	Fairfax County	SWANA
Leslie Romanchik	DEQ	Waste Division
Karen Sismour	DEQ	Waste Division
Lee Wilson	Waste Management, Inc.	VWIA

Attachment 2- Positions associated with the solid waste program, including approximate percentage of time spent working in the solid waste program

Position #	Position description	Approximate % of time allocated to solid waste*	Office location
P0619	compliance coordinator	100	CO-Waste
P4275	data specialist	100	CO-Waste
P0050	data specialist	40	CO-Waste
P1072	Enforcement	100	VRO
P4162	Enforcement	90	SCRO
P0641	Enforcement	50	PRO
P0891	Enforcement	50	TRO
P0933	Enforcement	50	TRO
P1068	Enforcement	50	NRO
P4024	Enforcement	40	NRO
P4291	Enforcement	25	SCRO
P4023	Enforcement	25	TRO
P4057	Enforcement	25	CO-Enforcement
P1064	Enforcement	10	SWRO
P4259	financial assurance	75	CO-Waste
P1136	financial assurance	60	CO-Waste
P4140	financial assurance	15	CO-Waste
P1144	Geologist	100	CO-Waste
P1151	Geologist	100	CO-Waste
P4272	Geologist	100	CO-Waste
P4273	Geologist	100	CO-Waste
P4274	Geologist	100	CO-Waste
P0509	Geologist	100	CO-Waste
P0545	Geologist	100	CO-Waste
P4061	Geologist	60	CO-Waste
P0627	Gw manager	60	CO-Waste
P4258	Inspector	100	PRO
P1120	Inspector	100	WCRO
P0263	Inspector	100	PRO
P0499	Inspector	100	SWRO
P0628	Inspector	100	PRO
P0656	Inspector	100	TRO
P1075	Inspector	100	NRO
P1079	Inspector	100	VRO
P4054	Inspector	100	TRO

P4060	Inspector	100	PRO
P4089	Inspector	100	PRO
P4091	Inspector	100	NRO
P4092	Inspector	100	NRO
P4105	Inspector	100	SWRO
P4150	Inspector	100	SCRO
P4103	Inspector	60	VRO
P0654	Inspector	50	WCRO
P4101	Inspector	50	WCRO
P0178	Inspector	40	VRO
P2014	Inspector	37	TRO
P0200	Inspector	25	PRO
P0633	Inspector	15	SWRO
P1074	Inspector	15	NRO
P1076	Inspector	15	NRO
P0987	Manager- regional	100	VRO
P0335	Manager- regional	90	WCRO
P1060	Manager- regional	90	NRO
P0580	Manager- regional	85	TRO
P0546	Manager- regional	75	PRO
P4145	Manager- regional	40	SCRO
P0040	Manager- regional	25	SWRO
P0625	permit coordinator	100	CO-Waste
P0541	permit writer	100	SWRO
P0559	permit writer	100	SCRO
P0583	permit writer	100	TRO
P0529	permit writer	100	PRO
P0544	permit writer	100	NRO
P0672	permit writer	100	VRO
P4048	permit writer	100	PRO
P4109	permit writer	100	WCRO
P0537	Permit manager	50	CO-Waste
P0961	recycle tax credits	75	CO-Waste
P4065	Reg. writer	100	CO-Waste
P4064	Reg. writer	75	CO-Waste
P0513	Reg. writer	55	CO-Waste
P4035	Regulations manager	65	CO-Waste
P0581	risk assess	30	CO-Waste
P1098	Secretary	100	CO-Waste
P0540	Secretary	25	CO-Waste
P0908	Secretary	25	TRO

P0357	Secretary	10	SWRO
P0611	Statistics	70	CO-Waste
Approximate # of equivalent full time employees		**56.17**	

* Actual percentages of time spent on solid waste issues periodically vary, due to vacancies, special projects, and workload.

Office Locations-
CO- Central Office
NVRO- Northern Virginia Regional Office
PRO- Piedmont Regional Office
SCRO- South Central Regional Office
SWRO- South West Regional Office
TRO- Tidewater Regional Office
VRO- Valley Regional Office
WCRO- West Central Regional Office

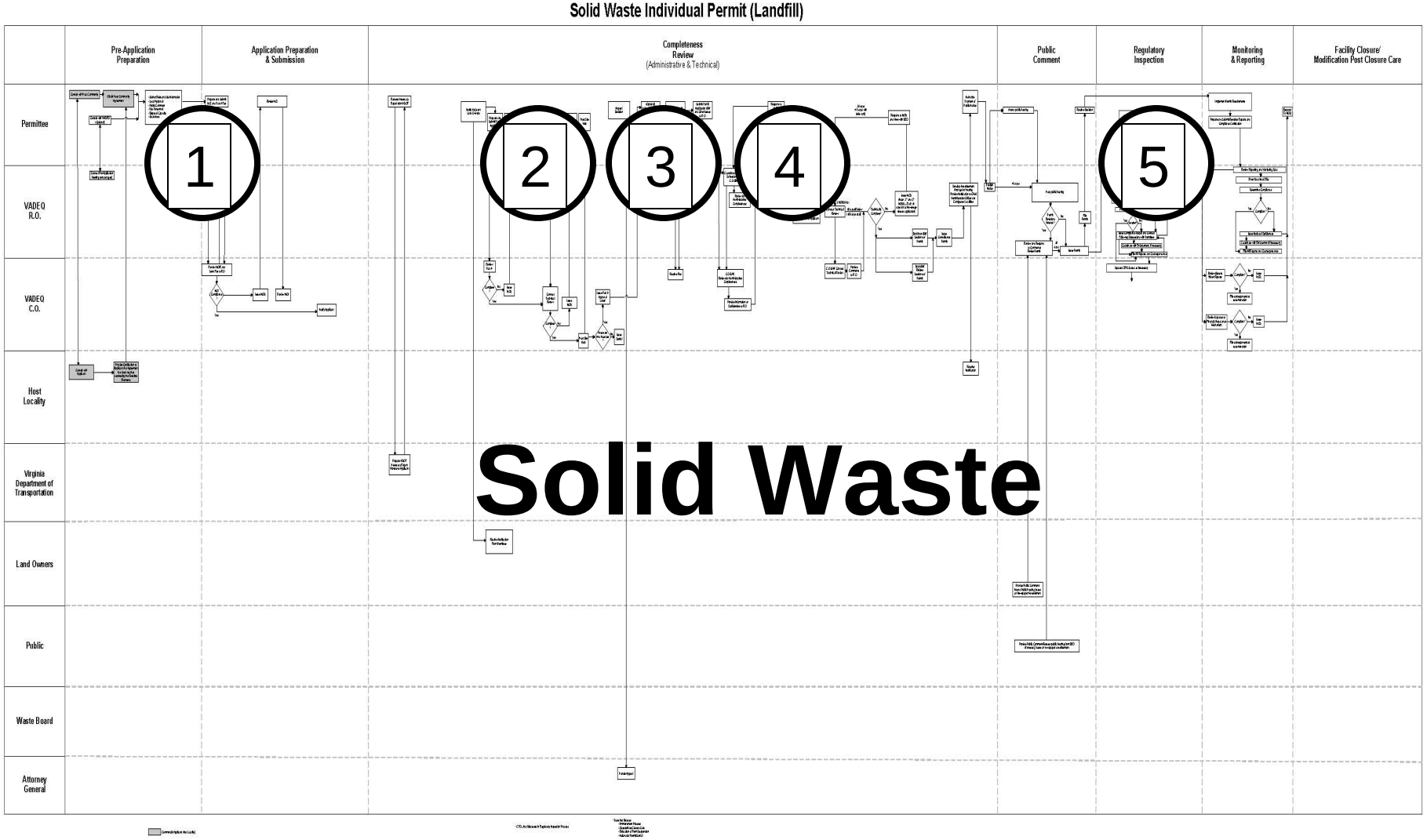
Attachment 3- Solid Waste Compliance Workload Analysis- Fiscal Year 2005

	FY05 Summary Solid Waste Compliance Workload Estimates						
Facility Status/Category	**Type of Facility**	**Number of Facilities or Actions**	**Average # of Inspections or Actions Per Year**	**Total Number of Inspections or Actions / Year**	**Average Hours Per Inspection or Action**	**Total Hours**	**Total Positions Needed**
Active Facilities							
Landfills	Sanitary Landfill	58	4	232	24	5,568	3.48
	Industrial Landfill	26	4	104	24	2,496	1.56
	CDD Landfill	17	4	68	24	1632	1.02
	Total Landfills	101		404		9,696	**6.06**
Treatment & Storage	Incinerator/Energy Recovery	7	4	28	16	448	0.28
	Material Recovery Facility	31	4	124	16	1984	1.24
	Transfer Station	54	4	216	16	3456	2.16
	Composters	14	4	56	16	896	0.56
	Miscellaneous	1	4	4	16	64	0.04
	RMW Alternate Treatment	5	4	20	16	320	0.20
	RMW Steam Sterlizer	14	4	56	16	896	0.56
	RMW Storage	1	4	4	16	64	0.04
	RMW Incinerator	2	4	8	16	128	0.08
	Landfill Mining	1	4	4	16	64	0.04
	Barge	1	26	26	24	624	0.39
	Total Treatment & Storage	131		546		8,944	**5.59**

Totals For All Active Facilities		232		950		18,640	**11.65**
Inactive Facilities							
	Sanitary Landfill	9	4	36	24	864	0.54
	Industrial Landfill	6	4	24	24	576	0.36
	CDD Landfill	6	4	24	24	576	0.36
	Incinerator/Energy Recovery	0	4	0	16	0	0.00
	Material Recovery Facility	1	4	4	16	64	0.04
	Transfer Station	1	4	4	16	64	0.04
	Composters	5	4	20	16	320	0.20
Totals For All Inactive Facilities		28		112		2,464	**1.54**
Post-Closure Facilities							
	Sanitary Landfill	95	1	95	16	1,520	0.95
	Industrial Landfill	15	1	15	16	240	0.15
	CDD Landfill	19	1	19	16	304	0.19
	Material Recovery Facility	1	1	1	16	16	0.01
	Other (Unpermitted)	20	1	20	16	320	0.20
Totals For All Post-Closure Facilities		150		150		2,400	**1.50**
Other Assignments							
	Complaints	519	1	519	7	3,633	2.28
	Compliance Assistance (5%)	16.7	1	16.7	100	1,670	1.06
	Waste Tire Inspections/Certificate	185	1	205	4	820	0.53
	Enforcement Support	42	1	42	4	168	0.14

	Groundwater Monitoring Reports	272	1	272	3	816	0.50
	New Regs/guidance	7	4	28	5	140	0.07
	Technical Permit Review	7	4	28	5	140	0.07
	Special Waste Request Review	81	1	81	2	162	0.11
	Training (5%)	16.7	1	16.7	100	1,670	1.06
	Brownfields/VRP/BFPP	117	1	117	10	1,170	0.74
	PREP/DEM Support	84	1	84	4	336	0.21
	EPA/CERCLA/Site Assess	84	1	84	4	336	0.21
	Community Outreach	7	10	70	4	280	0.21
	10 year permit review	31	1	31	5	155	0.12
	Surface Water Initiative/Guidance	7	12	84	8	672	0.42
	SWIA reports	239	1	239	1	239	0.16
	CEDS Maintenance	7	15.7	110	4	440	0.31
Totals For All Other Assignments		1,722.4		2,027.4		12,847.0	**8.03**
Special Assignments							
	Committees	14	6	84	5	420	0.28
Totals For Special Assignments		14		84		420	**0.26**
Grand Total For All Regions Workload		**2,146.40**		**3,323.40**		**36,771.00**	***22.98***

Attachment 4 Opportunities for Improving the Solid Waste Permit Program


Solid Waste Individual Permit (Landfill)
Pre-Application Preparation
Application Preparation & Submission
Completeness Review (Administrative & Technical)
Public Comment
Regulatory Inspection
Monitoring & Reporting
Facility Closure/ Modification Post Closure Care
Permittee
VADEQ R.O.
VADEQ C.O.
Host Locality
Virginia Department of Transportation
Land Owners
Public
Waste Board
Attorney General
1
2
3
4
5
Solid Waste

ERM

Solid Waste Priority Opportunities
Context

- **Permits have been required since 1971 with major revisions in 1988 and 1993**
- **The program was federally approved in 1993 but is not federally funded**
- **Annual permit fees are set by statute which required completion of this report with Peer Review Team participation**
- **Annual fees and permit action fees do not cover the full cost of the program (general funds are needed to make up the difference)**
- **Information on how these funds are used to support the program, staffing needs, and any efficiencies realized would ensure this evaluation process meets the expectations of some of the study participants.**
- **A report on fees collected to support the solid waste program as well program expenditures is prepared bi-annually as required by statute.**

Solid Waste Priority Opportunities
Top Solid Waste Opportunities and Actions

1. **Streamline permit application process**
2. **Expedite permit review and issuance processes**
3. **Strengthen risk-based, performance-based permit approaches**
4. **Improve quality, consistency, and relevance of permits**
5. **Improve quality of inspections and timeliness of reports**

Solid Waste Priority Opportunities
Relationship to Cross-Program Opportunities

The following improvements, identified as cross-program opportunities, are important to successful implementation of the solid waste priority opportunities:

- Intra-program communications
- Workforce retention and competency development
- Technology and infrastructure that support emerging work models (e.g., telecommuters, job sharing)
- Risk-based inspection scopes and frequencies
- Incentives for top tier environmental performers
- Facilitated public access via the Internet to non-confidential documents (e.g., FOIA requests)
- Timely, accurate, and clearly presented permit and inspection guidance documents
- User-friendly, streamlined application forms

Opportunity 1: Streamline permit application process

Efficiency and Effectiveness Outcomes

- Easier to understand and complete correctly
- Speed up the review process

1. Develop an application form that is more structured and amenable to electronic completion and submissions. Also provide for electronic submittal of supporting materials (e.g., Quality Assurance/Quality Control plan) (U)
2. Authorize electronic signature information (U).
3. Improve permit application guidance to make it easier to understand and use by permit applicants. (U)
4. Implement a more formal approach to pre-application meetings to achieve outcomes such as agreement on functionally equivalent construction materials and designs that qualify for an expedited permit amendment review.* Alternatively, provide more clarity in regulations about permit amendment scenarios. (U)

*** See Opportunity 2, #4, for additional points regarding pre-application meetings**

Opportunity 2: Expedite permit review and issuance processes

Efficiency and Effectiveness Outcomes

- Reduce amount of time permit waits at DEQ without progress.
- Streamline communications and coordination (within DEQ, between DEQ and permittee).

1. Improve internal coordination between Part A, Part B and Part B ground water reviews (U)
2. Provide dedicated DEQ staff resource for Part A reviews with appropriate combination of technical and regulatory knowledge (e.g., geological engineering, hydrogeology) (C). Ensure backup is available and obtain feedback from regulated community by 1/31/06 on the success of this strategy. (U)
3. Assign an accessible single point of contact (SPC) within DEQ to coordinate and expedite communications with permittee. Define the SPC role and responsibilities, ensure proper training, and pilot and refine the approach (e.g., this will typically be the Regional Waste Program Manager). (U)
4. Encourage the use and usefulness of pre-application meetings to communicate DEQ permit process, including DEQ's timeline commitments and the impact of incomplete applications on the DEQ schedule. Do this for Part A, Part B, CTO, and closure review processes (U)
5. Conduct resource needs assessment as part of manpower allocation, including outsourcing evaluation to catch up on backlog. (U)
6. Improve consistency and continuity of permit review process during transitions (e.g., when permit writer changes) by managing staff to adhere to permit review expectations and norms. Clearly articulate and communicate these expectations and norms to managers and staff and document guidance accessible both to DEQ staff and the regulated community. (U)
7. Establish criteria for field inspections and review of submitted material at critical steps during construction and closure to expedite final CTO approval and final closure certification (U)
8. Adhere to existing permit review timelines (U)
9. Develop list or guidance for applicants and DEQ staff regarding "functionally equivalent" construction materials that qualify for an expedited permit amendment review. (U)

Solid Waste Priority Opportunities
Opportunity 3: Strengthen risk-based, performance-based approaches to permitting to best utilize DEQ staff resources

Efficiency and Effectiveness Outcomes

- Speed review of approved alternatives
- Reduce level of effort spent on minor risks by permit writers, inspectors and permittees
- Refocus resources on ensuring consistent achievement of high standards of performance
- Increase opportunity to use DEQ resources for compliance monitoring of higher risk activities

1. Evaluate and revise regulations to incorporate a list of approved alternative designs that can be approved in the initial permit or a major permit amendment without going through the variance procedure. (U)
2. Amend regulations to distinguish whether specific kinds of changes (e.g., changes in kind, functionally or operationally equivalent changes) can be made by change order/notification rather than minor amendment process. (U)
3. Amend regulations to state that unless required by statute, public meetings and hearings will be held only when requested (U).
4. Establish hierarchy of DEQ review priorities, considering environmental protection objectives, the hierarchy of preferred waste management methods, and the applicant's business continuity issues. [Note: Benchmark states such as North Carolina that are successfully attracting and implementing preferred waste management methods such as composting, material recovery, and recycling.] (U)

Solid Waste Priority Opportunities

Opportunity 4: Improve quality, consistency and relevance of permits

Efficiency and Effectiveness Outcomes

- More consistent permit and permit application quality.
- Improved likelihood of faster permit application review and processing, including resolution of differences between applicant and DEQ.
- Clearer, more concise permits are easier for permittees to understand, making compliance easier to achieve.
- Clearer, more concise permits are easier for inspectors to understand, improving compliance monitoring.

1. Provide timely and understandable technical guidance and training to ensure consistency in permit writers' interpretation of the regulations. Use real life scenarios to improve relevance and usefulness. (U)
2. Improve content of technical guidance to permit writers on conducting administrative and technical completeness reviews. Reinforce the guidance as part of permit writer training. (C)
3. Improve the format and structure of DEQ procedures and guidelines, for both internal use and for the regulated community, to make these more concise, usable, timely, and accurate. Make the format and structure consistent across DEQ. (U)
4. Make permit format more consistent and concise by identifying key requirements for inclusion, common permit conditions, and boilerplate as well as information in the application that can be addressed in the permit by reference. Craft a strawman for review by DEQ and regulated community and other stakeholders. Consider if regulatory changes are needed to accomplish this. (U)
5. Ensure that permit writers receive timely and applicable training appropriate to job duties. (U)
6. Reinforce communications expectations between permit writer and applicant. (U)

Solid Waste Priority Opportunities

Opportunity 5 : Improve quality of inspections and timeliness of inspection reports

Efficiency and Effectiveness Outcomes

- More consistent inspection scope and execution.
- More communication/information transfer and certainty on findings before the inspector leaves locations (thus, fewer surprises)
- Faster creation of inspection checklists and reports.
- Timely issuance of inspection reports to permittee.

1. Reinforce communications expectations between inspector and permittee. (U)
2. Review agency guidelines with inspectors and provide training as necessary to ensure inspectors can discuss potential compliance issues with permittees at the completion of the field inspection and before leaving the site. (C)
3. Enhance inspector training through the inclusion of “real life” scenarios. (C)
4. Ensure adequate field oversight role for management to ensure consistency of inspection scope, quality and reports. (U)
5. Streamline input of routine data, preparation of inspection reports, and completion of inspection checklists. (U)
6. Re-emphasize with staff the importance of adhering to established guidelines on timely issuance of inspection reports. (C)

Virginia DEQ Permitting Process Efficiency Study

Agency Staffing Methodology Report

September 2006

Completed by ERM for the Virginia Department of Environmental Quality

Virginia DEQ Permitting Process Efficiency Study

Agency Staffing Methodology Report

September 2006

Delivering sustainable solutions in a more competitive world

ERM

Virginia Department of Environmental Quality
Agency Staffing Methodology Report

Table of Contents

Virginia Department of Environmental Quality

Permitting Process Efficiency Study

Agency Staffing Methodology Project

I. Project Objectives

In October 2004, ERM received a contract from the Virginia Department of Environmental Quality (DEQ) to conduct a comprehensive evaluation and review of the regulatory environmental permitting cycle to determine opportunities for process streamlining and cost savings. This contract was to be completed by November 2006. One of the tasks of this contract required the contractor (ERM) to develop methodology to evaluate the adequacy and allocation of DEQ's staff in the permit programs.

This report addresses the specific task of developing the methodology to evaluate the agency staffing levels and allocation. The balance of the deliverables for this contract were submitted previously.

To conduct this review, ERM conducted interviews with DEQ staff both in the Central Office and in regional offices. A previous study conducted internally by DEQ in 1999-2000 was also reviewed for applicability to this study.

II. Background of Project

In 2004, the General Assembly enacted legislation (Senate Bill 365 and House Bill 1350) directing DEQ to conduct a study, led by an outside consulting firm that would "evaluate (i) operational changes that would improve the efficiency and effectiveness of the agency's operations, (ii) ways to reduce the costs of compliance, and (iii) the adequacy and appropriateness of staffing levels to meet state and federal requirements". Subsequently, ERM was selected in late 2004 as the consultant to DEQ to assist them in conducting the process efficiency study. In late 2005, ERM issued its report that dealt with

the first two issues; efficiency and effectiveness of DEQ's operation, and opportunities to reduce the costs of compliance.

This report addresses the final requirement that a methodology be recommended in order to evaluate the adequacy and allocation of DEQ's staff in the permit programs. The information presented and recommendations are largely based on discussions with DEQ staff, reviewing previous studies conducted by DEQ and professional judgments.

III. Approach to Study

The study was conducted by ERM with the full co-operation and participation of DEQ management and staff. Data gathering for the complete study was largely derived from interviews and surveys of DEQ staff, regulated community representatives and non-governmental organizations. In addition, other state environmental agencies were researched and used as benchmarks for many process improvement opportunities.

During the course of the interviews with DEQ staff and outside organizations, the issue of the adequacy and appropriateness of the DEQ staff often was raised. However, the opinions offered were anecdotal in nature and not based or derived from any analytical tools. Some members of the DEQ staff would express the opinion that additional staff was needed but this was generally based on the current workload. Those interviewed from outside organizations generally commented on the "adequacy" of the DEQ staff in terms of technical competency. Both DEQ staff and the outside organizations often commented on the "adequacy" of the DEQ staff in terms of needing more training. This issue was often directly related to the higher than normal staff turnover rate being experienced in early 2005. The training and turnover issues were highlighted in the previous ERM report and will not further analyzed here. Analytical tools to access proper staffing levels from interviewed outside organizations were not available.

Other states' environmental agencies were solicited for any analytical methods used to access staffing levels. This effort was mostly conducted with state environmental directors during meetings of the Environmental Council of States. Though other states have conducted formal studies to evaluate their permitting process, none appear to have developed methodology to access staffing levels.

One of the consequences of staff turnover, be it derived from resignation or retirement, is that the replacement employee will most likely not have the same efficiency as the former employee who may have had one to thirty years (or more) of experience and training. ERM asked DEQ managers to comment on the relative efficiency or effectiveness of permit and compliance staff as their tenure with the agency increases. Once again the opinions offered were anecdotal and subjective but there was some general agreement that the efficiency progressed over the first five years of employment and then "plateaued" for the purposes of significant efficiency improvements thereafter.

The main reason that DEQ and other states' environmental agencies can only offer subjective opinions on the adequacy of staffing levels is that they do not track employees' time by specific activity. For instance, air staff must track Title V related work as that is a Federal requirement to use Title V derived permit fees to support staff work. However, the hour-by-hour specific project tasks are not tracked. Consequently, the number of hours needed to do a certain type of permit task is based on the best professional judgment of the program management which can have significant inconsistency. Also, the relative efficiency of an experienced employee compared to an inexperienced employee cannot be likewise determined. This issue will be discussed further in the Recommendations section of this report.

It should be noted that DEQ and other states environmental agencies do track permit issuance in terms of days since the receipt of a complete application. This is a useful management tracking tool and is of particular interest to the permit applicant. This metric does not give an adequate metric for permitting staff adequacy or effectiveness.

IV. Efficiency and Experience

It will be the assumption of this study that employees with more experience in a position are more efficient and effective at doing their job than are employees with less experience. Based on DEQ input, this study will also assume for planning purposes that an employee's efficiency increase is much more pronounced in the first five years of experience than in subsequent years.

To derive a staffing adequacy methodology, the relative efficiency of the staff must be included in the analysis. The surrogate that will be used for efficiency in this proposed methodology is experience in the current position or experience in the media program. From discussions with DEQ management, five years of experience was rated as being able to fully function in their current position. Therefore, employees with five years of experience will be assigned an efficiency factor of 1.0. The table that follows is a demonstration of a sample matrix of how a random employee's expected efficiency can be categorized based on the experience level. A general justification is also shown. It should be noted that these values are for modeling only and should be confirmed by the detailed time/task tracking mentioned previously.

Table 1: Employee Efficiency Relation to Experience

Number of years experience	Experience and Training	Efficiency Factor
< 2 years	Receives basic training, handles simple tasks and trains under senior staff	.50
2-3 years	Receives more advanced training and has reduced senior staff oversight but still requires more time to research subjects	.65
3-5 years	Training is supplemental. Able to handle more complex permits with minimal management oversight. Research time is reduced and over the course of the time most experiences are encountered.	.85
5+ years	Fully functional. Able to perform all tasks with minimal review. Able to train newer employees.	1.0

V. Internal DEQ Workload Analysis

In 1999 the DEQ Executive Management Team commissioned an internal study to analyze the staff allocation across the agency for the various regulatory functions. This study was conducted by several senior staff members from the central office as well as from regional offices. The report was completed and delivered to the Executive Management Team in September 2000.

This study was very comprehensive in scope and included a great deal of detailed analysis. The purpose of the study as stated in the reports summary "was to provide average activity / program levels that can be used across the Agency for workload analysis and planning". The report summary also noted that the times-per-task data was based on the best estimates of the experienced staff since detailed hourly task tracking is only minimally utilized. The study committee also investigated if other states in EPA Region III and Ohio had conducted any analytical studies involving empirical data. The committee reported that "none of those contacted were aware of a model that would address resource allocation within and across media.

The report notes that this study did not cover all the variables such as peak / off peak workloads, employee turnover impact, and experience levels. In the report each task within each program was assigned a hourly rate to complete and the expected number of those specific tasks in each region was listed. This resulted in a staff-hours required per program / activity area. This gross number was then divided by 1636 hours that each employee would likely have to work in these tasks (444 hours were assumed for vacations, administrative tasks, etc.). The product of this division was the number of full time equivalent (FTE) employees that would be needed in that program area in that region. This number was then compared to the FTE employees currently available to determine the deficit or excess of employees for that regional program. The amount of detail was fairly consistent program to program for work done in Regional Offices but the Central Office functions were not analyzed in any significant detail.

This study was used by the Executive Management Team to determine the proper staffing levels for the purposed West Central Regional Office in Lynchburg and to have an understanding where resources could be re-programmed from other regional offices if the workload study illuminated areas that may have an excess of staffing resources. The West Central

Regional Office was created in 2001. ERM was unable to determine if this Workload Study had been used for planning purposes since that time.

The 2000 Workload study assigned hourly per task rates based on the experience of the senior staff involved in the study. ERM was provided with an hourly task rate chart currently used by the Valley Regional Office (VRO) air permit program as a guide when allocating permit work among the air permit staff there. This chart has twelve different categories with times ranging from 8 hours for the simplest task up to 500 hours for a PSD / Complex Title V permit. It was noted that the number of hours in the this regional office's program chart for a particular task was often remarkably different than the hourly task rates for a similar task in the 2000 Workload study. For example, the 2000 Workload study assigned 1000 staff hours for a PSD permit whereas the Valley air permit office assigned a value of 500 hours for the same task. This observation is made not to judge the validity of either value but demonstrate the subjectivity, though both were derived by very experienced managers. For a proper methodology to be accomplished, complete time accounting for specific tasks would need to be conducted.

ERM was also provided with an hourly task rate chart being used by the Northern Regional Office (NRO) water permit program for estimating the staff time to perform certain tasks that are common in the Virginia Pollutant Discharge Elimination System (VPDES) permit process. This chart gives that manager a wide range of hours for each task. For instance, a new major industrial VPDES permit would have an expected staff time commitment of 150-300+ hours. Though this chart is likely useful as a guide for a day-to-day basis, it would not be adequate for staffing allocation considerations as the hourly ranges are too broad. The Water Permits section of the 2000 Workload study did not assign specific hours to each task type; instead the hours for that task were aggregated for that regional office and the algorithm. This makes comparisons with the Northern Regional office guide impractical. It should also be noted that no other regional water permits program uses this guide nor is ERM aware that any other regional water permit program has a similar guide.

During the discussion with the NRO water permit manager, the issue of public hearings was brought up. He pointed out that his chart showed an average expected time to complete all components that make up a public hearing to be approximately 120 staff hours. It should also be noted that in the 2000 Workload report, the time for a public hearing for a water permit would appear to be no more than 34 staff hours. In the same study, air permitting did not break out public hearings as a separate task. The VRO air

permit hour/task guide did not have a specific task value for public hearings but it appears from comparing task descriptions that the expectation is that the public hearing process is expected to take approximately 80 hours. This discussion on public hearings illustrates a potential need to track certain sub-tasks within a main task (e.g. issuing a VPDES permit). In this case, the manner by which a regional office conducts public hearings could have an effect on the number of hours to complete the permit that would not be related to the efficiency of the individual permit writer.

VI. Methodology

The analysis process used by the Workload study in 2000 was comprehensive and useful but used subjective data. In addition, that study did not account for the effects of various degrees of experience in determining the effective fully functional FTE employees available for a particular program area. Incorporate the efficiency factor into the analysis increases the complexity of the analysis and it may be useful to develop a simple computer program to run the analysis for the entire agency including variable staffing level scenarios. Otherwise each program area within each office will have to calculate the effective staffing levels for themselves.

Table 2, on the next page, outlines the methodology for determining the effective staffing level present from year with certain scenarios shown. These scenarios are shown as examples only. Again, a simple computer program could be developed to handle the many staffing permutations that could be encountered.

The first column shows a typical staffing distribution within a regional office. This column would be used as the baseline staffing scenario. For this scenario, the program manager has determined that the current staffing level is adequate for the expected workload. Once this is determined, the effects of staff turnover can be seen. For the purposes of this methodology, the efficiency factors that are in Table 1 of this report are used.

Table 2: Methodology for DEQ Staffing Assessments-Typical Regional Staffing Scenario

	Baseline Staffing Years Experience/ Efficiency Factor (Exp./Eff.)	Scenario# 1 Sr. Staff Leaves Position #1; Year Passes (Exp./Eff.)	Scenario# 2 Year Passes; No Turnover (Exp./Eff.)	Scenario# 3 Mid-level Staff Leaves Position #4 ; Year Passes (Exp./Eff.)	Scenario# 4 Scenario# 3 plus Sr. Staff Leaves Position #2 (Exp./Eff.)
Position 001	5+ / 1	1 / .5	2 / .65	3 / .85	3 / .85
Position 002	5+ / 1	5+ / 1	5+ / 1	5+ / 1	1 / .5
Position 003	3+ / .85	4+ / .85	5+ / 1	5+ / 1	5+ / 1
Position 004	2 / .65	3 / .85	4 / .85	1 / .5	1 / .5
Position 005	<1 / .5	<2 / .65	<3 / .65	3+ / .85	3+ / .85
Total Effective Staff	4.0	3.85	4.15	4.2	3.7

The table shows a staff experience distribution between five staff positions. Two employees are senior, one mid-level, one junior level and one who has recently been hired. Using the efficiency factor, the net effect is four total equivalent fully functional staff. For the purposes of this demonstration, it is assumed that the staff turnover occurs at the beginning of the year and the staff evaluation is occurring at the end of the year. It is also assumed that the position is replaced immediately upon vacancy.

Each change has a corollary effect on the total equivalent fully functional (TEFF) staff. In Scenario #1, a senior staff person leaves DEQ. He is replaced by a new hire. This changes the TEFF level to below the level considered adequate to perform the program functions in a timely manner but not significantly. This situation will be discussed again later in this report.

In Scenario #2, a year passes with no turnover but the TEFF staff rating goes above the baseline level because the staff has grown in experience. In Scenario #3, a mid-level person leaves and is replaced with a new hire but at the end of the year, the TEFF staff level is still higher than the previous year because the growth in experience in the remaining staff during the year more than offsets the loss in experience of the mid-level employee. Finally, in Scenario #4, the conditions of Scenario #3 are complicated by a concurrent loss of a senior level employee that is replaced by a new hire. In this case, the TEFF staff level may be considered significantly below the threshold needed to perform the program activities in a timely manner. This last scenario is meant to mimic a high turnover rate that hopefully is temporary.

This methodology also illustrates a misconception regarding staffing levels. It is sometimes suggested that staffing needs to be augmented because the work load is more than the staff can handle. For instance, in the case of Scenario #4, the need for additional resources could be felt from delays in getting permits completed on time. If a sixth position were added, and the turnover rate dropped, the staffing for this program would likely be in 5+ TEFF staff level the next year and would therefore be in a significantly over staffed condition. Instead, this methodology shows that within a year the TEFF staff level will have returned to the baseline staff level. Of course all of this assumes that no new significant program requirements are added to the workload which would change the baseline staff requirements.

This methodology also adds emphasis to many of the issues raised in the main permit process improvement study. The significance of staff turnover and training can be seen to directly translate into program staff effectiveness. Further, if a analytical staffing methodology is not used, then the full effectiveness of the permit process improvement study cannot be realized.

VII. Recommendations

This report has demonstrated that an analytical methodology for accessing staff levels can be a critical tool to the DEQ management. The 2000 Workload study was a significant step forward in developing this methodology but it was limited by the lack of empirical data to support hypotheses of the expected levels of effort needed to perform the various activities.

This methodology also illustrates that effective program staffing levels can be effected by turnover even when all positions are presently filled due to the loss of experience. This can result in temporary staff deficiencies that may need to be made up from additional resources. However, this methodology also shows that adding additional FTE's may be counter to the long term efficient utilization of the available FTE's. Instead, it is suggested that alternative supplemental staff resources be set up to deal with "holes" in the staffing. Some of these were outlined in the permit process improvement study and may be repeated again here. Possible sources of supplemental staffing are:

- Utilization of staff from other regions. This can be particularly applicable to the issuance of permits. The new Document Management system being implemented will be critical to the success this potential resource management tool;

- Utilization of P-14 temporary staff to add TEFF staff level. This option would need experienced outside labor as training inexperienced P-14 staff to be there only six months is not efficient. DEQ should seek to determine the potential workforce supply of temporary workers that could fill these needs. This workforce, for example, could consist of DEQ retirees or other former employees that could be part time workers;

- The methodology assumed that vacant positions are filled immediately which is not realistic. Replacing open positions often takes three months from vacancy to start date. This time gap creates a "hole" with a zero

TEFF staff level for that position during that time which can have serious consequences for program performance expectations. It is recommended that for planned turnover due to retirement, DEQ internal promotions, or other long notice resignations that the hiring process commence before the actual vacancy occurs in order to reduce the effect on the TEFF staff level; and

- During periods of high turnover, it is recommended that DEQ advertise for general positions that may not be vacant but is probable to be vacant during the next few months. In this way, applicants are in the process of being evaluated for hire and could be brought in much faster.

The methodology demonstrated in this report and the methodology used in the 2000 Workforce study both require empirical data to be accurate for use by DEQ management. When the 2000 Workforce study was begun, electronic time sheets were just coming into use. Today, electronic time sheets that can be utilized to track specific time spent on tasks are commonplace and used widely in the private sector to "charge" projects with employees' time. These systems are not difficult to implement and provide information for management that would be critical for the implementation of accurate staff level determinations as well as for other management functions. In addition, this empirical data could be useful in planning for future programs where the functions would be similar.

It is recommended that DEQ:

- Implement a task time tracking system that program staff would input electronically as an extension of their current timesheet system. Project codes could be registration or permit numbers for permit work and facility numbers for inspections. Other functions such as training, vacations, etc. would be assigned administrative codes;

- After one year of empirical data, the proposed methodology should be completely reviewed and adjusted as appropriately. This would likely impact the staff hour predictions for task completion as well as the employee efficiency factors;

- If a full Agency wide task time tracking system cannot be implemented, then it is recommended that a significant demonstration project be undertaken that would be separate from the normal electronic time sheet system and would capture this same task time data in another data base . This would involve several staff in the regional offices and central office to

track specific task times. The staff selected would have to have various experience levels and encompass the breadth of the different programs;

- Certain sub-tasks (e.g. conducting public hearings) within a major task should be tracked to determine if they are being implemented consistently among the regional offices;

- It is recommended that the periodic evaluation of the DEQ staffing level through an analytical method such as presented in this report be incorporated into the Agency's Strategic Plan so that proper planning in response to the periodic assessment can be undertaken. It is recommended that the Agency staffing levels be fully reviewed at least every two years, near the beginning of the Virginia Biennial Budget cycle so that the Director and his senior staff can insure that the staffing levels reflect the Agency's priorities; and

- It is further recommended that the existing Workload study from 2000 be utilized to assess the allocation of the Agency's Full Time Equivalent (FTE's) employees among the Agency's various programs and administrative tasks. The Agency's environmental programs and administrative functions change over time. As programs mature, new programs are started, or as Agency priorities change, the staffing levels in each respective program may change. Therefore the various activities should be periodically evaluated to determine if the Agency should re-allocate the available FTE's to meet the current business requirements.